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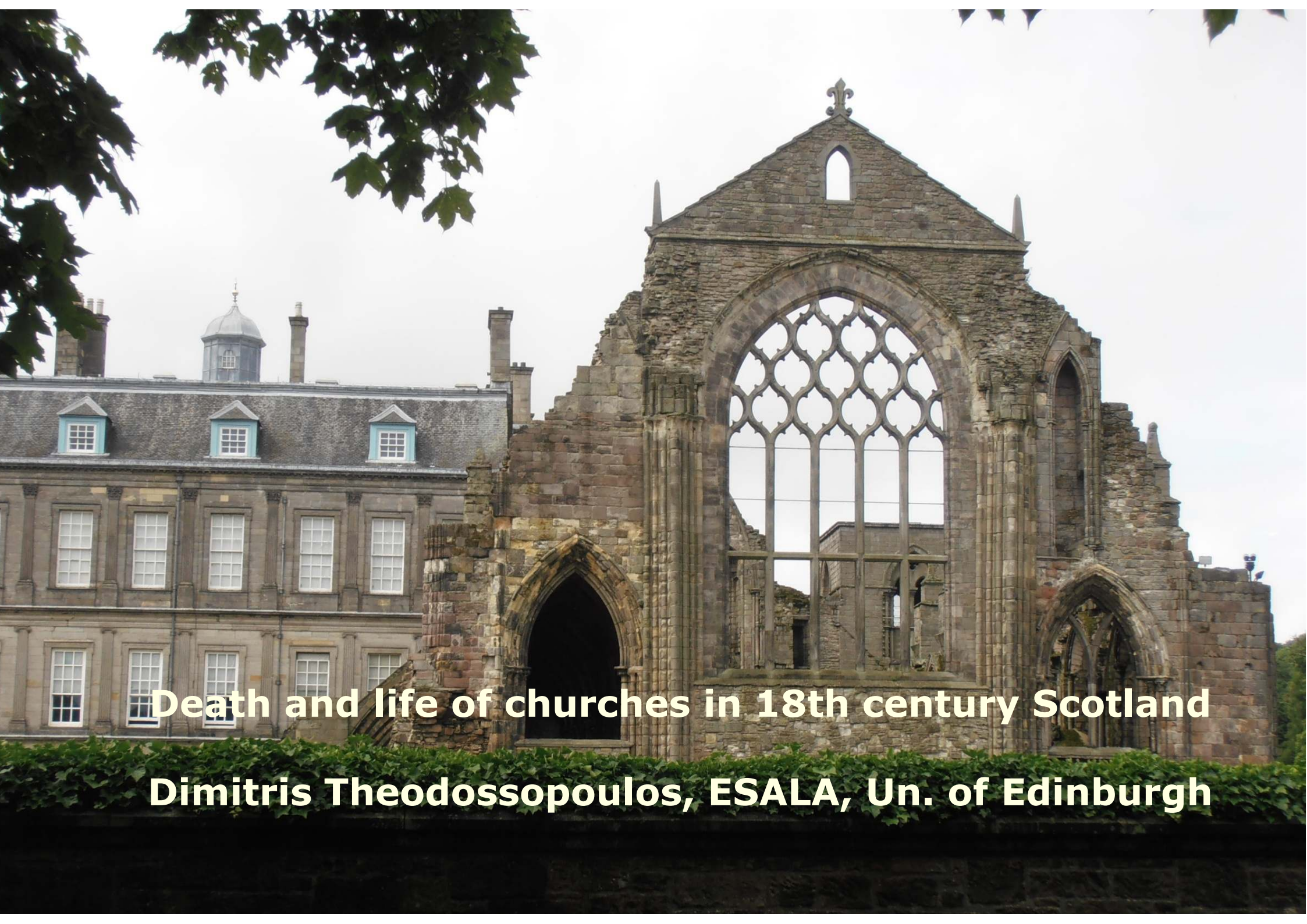
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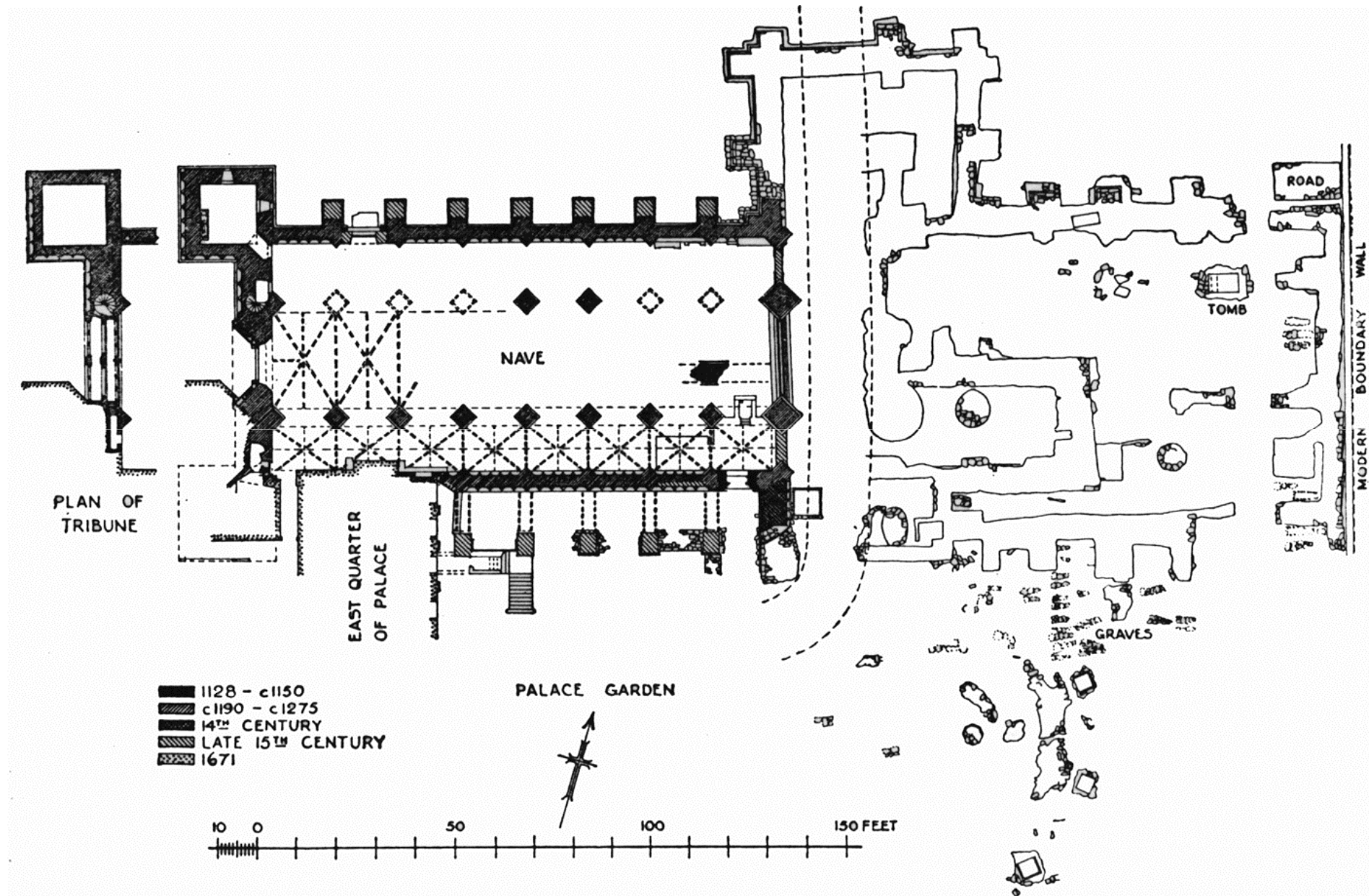
Death and life of churches in 18th century Scotland

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Death and life of churches in 18C Scotland

- Holyrood collapse, 1768 and no reconstruction
- Period of transformations: study those triggered by failures
- Scotland: definite transition from medieval to early modern practices in church architecture alongside the establishment of Reformation rituals
- Original schemes not understood? Architectural values not defined?
- St Machar, Aberdeen 1688-1953
- St. Nicholas, transformations
- Fearn Abbey, successive transformations in 1742
- St. Salvator, roof demolished in 1773
- British context

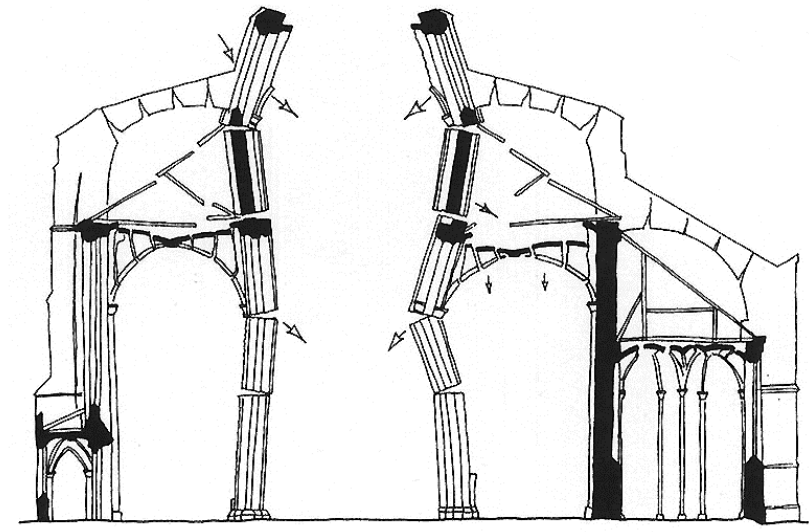
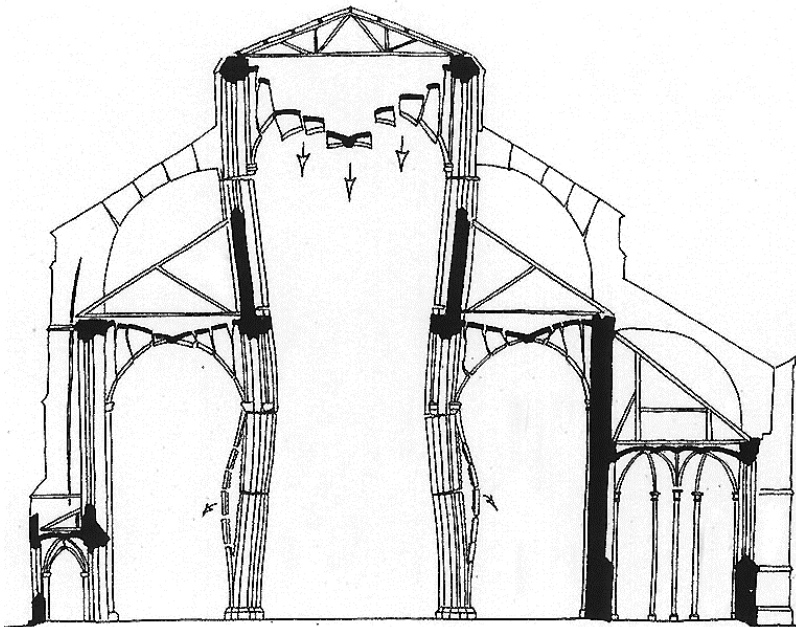
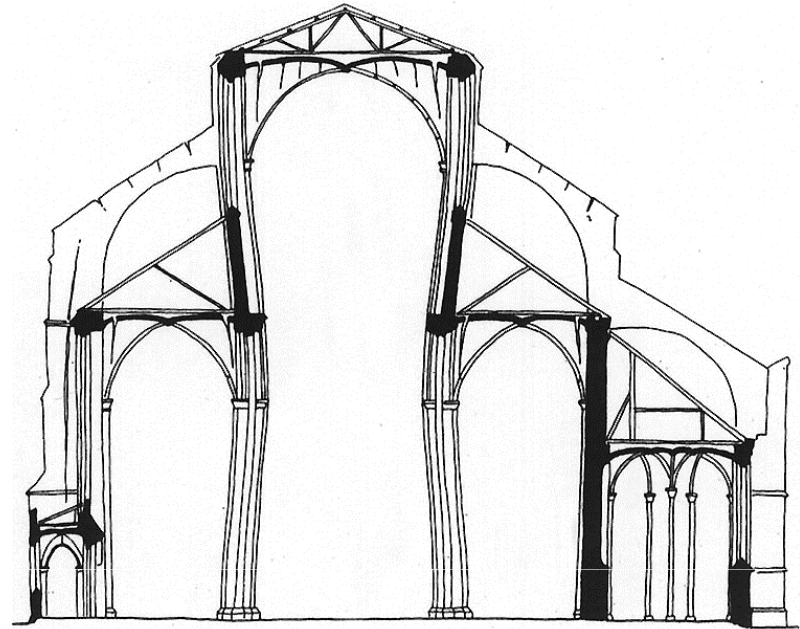
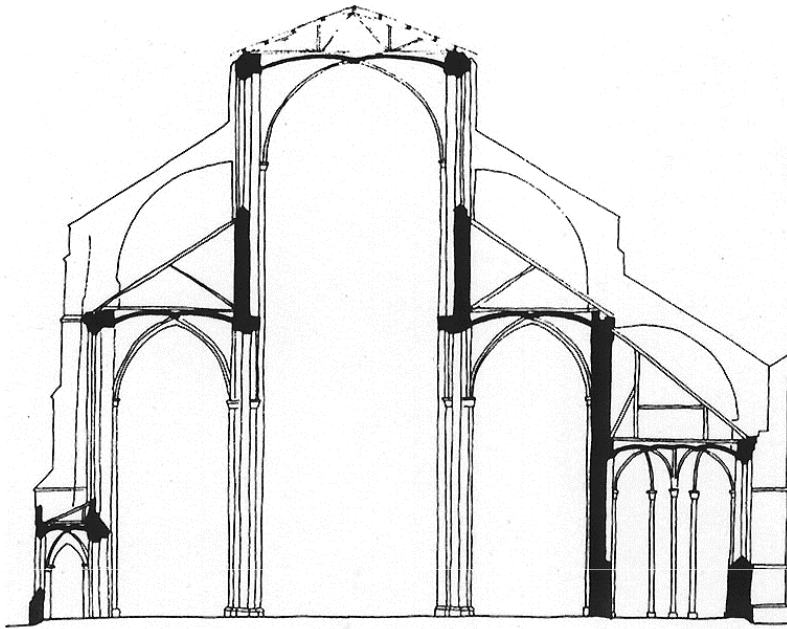
Holyrood Abbey, Edinburgh 1768



Holyrood Abbey ruins



Collapse in 1768: excessive load placed on roof



Experimental collapse at 31mm (1/30 of span)



Key events

- 20/2/1754 Exchequer Court; Discussion of petition by the Duke of Hamilton regarding repairs on the roof of Abbey Church and Order to allocate sums from the Vacant Stipends
- 1757 Estimates presented by John Douglas and James McPherson
- 28/6/1758 Order to them to enter into Contract of £1003 (£157K in 2014)
- 7/8/1758 First payment to Douglas and McPherson of the sum of £ 307
- 22/6/1760 Second payment of £ 100
- 28/6/1760 Completion of intervention

Substitute timber truss with stone walls, @600mm



	L	s	d		Cost %
To taking off all the Old Roof and clearing of the Rubbish of the Tops of the Pends so as to get a clear foundation for the Stone Walls that is to carry the hewn Stone Roof					4%
and for supporting the Stone Roof	35				
To 54 Rood 18 yards of Rubble Building at £5 .. 3 p Rood	280	13	6	Ok	28%
To 12060 Feet of Hewn Stone contain'd in the Main Roof and Isles adjoining to (it)				Ok	40%
at 8d per foot	402				
To laying the whole Church with pavement Measuring 7500 feet at 6d per foot	187	10		ok	19
To levelling the floor of the Church and furnishing dead sand for laying the pavement of (Ditto)	10				1
To furnishing pan Cratch for jointing and laying the whole of the hewn stone of the Roofs	20				2
To pointing the whole of the Ashler round the Outside of the Church & Steeple with Pan-cratch and Harling the Rubble Building where there is no Ashler; the Measure being 1750 Yards at 6d per yard	43	15			4
To 4 Roods 26 yards of Rubble Building in making up the Windows, where the Stone Roof of the Isles is to join to the side walls of the Main body of the Church at £5 .. 3 per Rood				-	2
	24	6	4½		
Total £	1003	4	10½		100%

Key dates

- 10/12/1766 Report by W. Mylne to D.S. Moncrieff (Exchequer Court) on dangerous state of building “approaching collapse”
- 6/12/1768 Fall of the roof of the church
- 9/12/1768 W. Mylne reports on the collapse and he is asked to take down the remaining part of the roof
- March 1769 completion of clear out
- 1771 D. S. Moncrieff sues John Douglas and James McPherson for the repairs of 1760
- 3/7/1778 Exchequer Court; Settlement of the remaining payment for the repairs of 1760 in favour of Douglas & McPherson (payment in 1781)

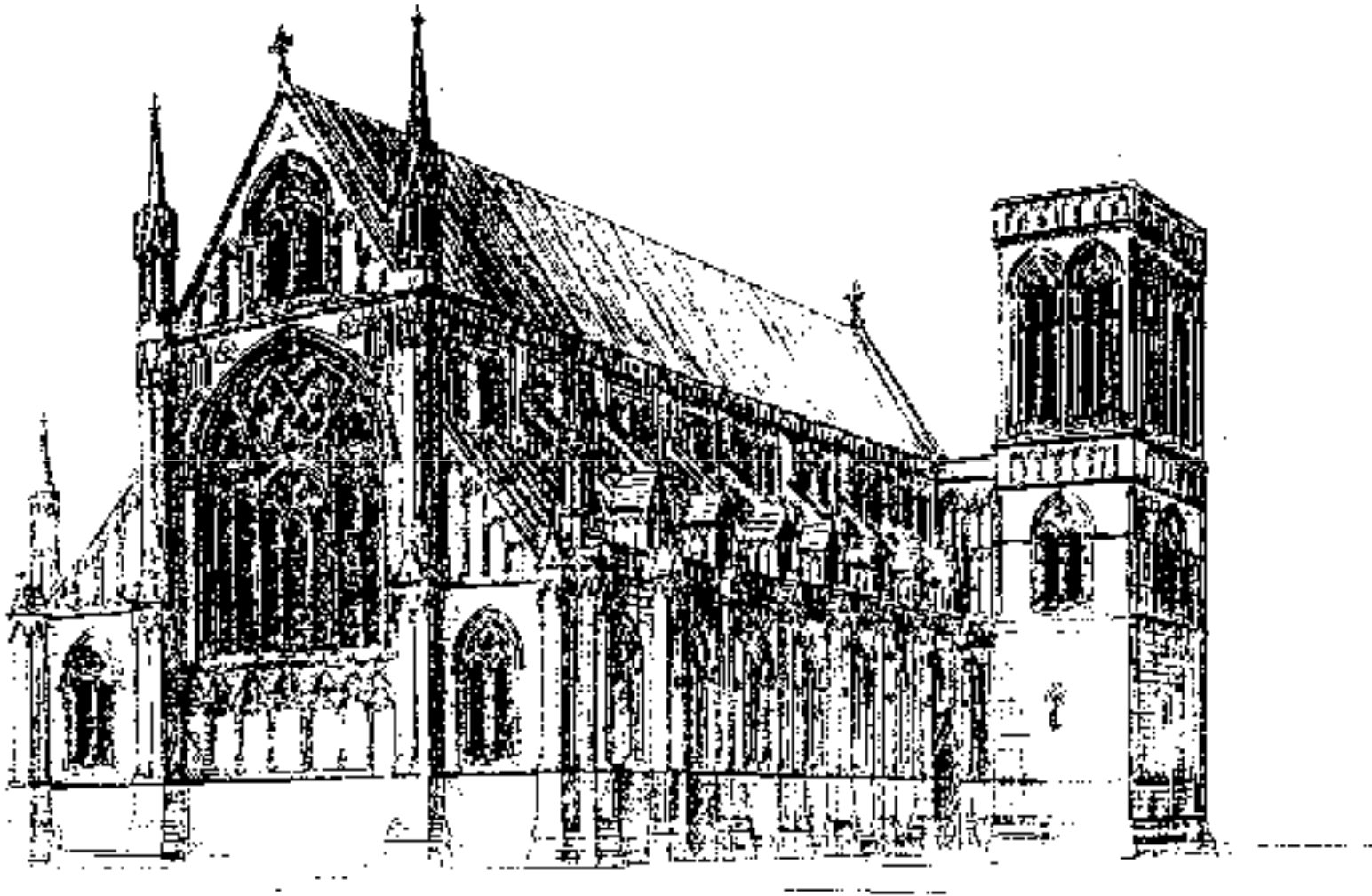
Report on imminent collapse, W Mylne 1766

- the walls and pillars of the church are two to three inches (50 to 75mm or $1/70$ of transverse aisle span) out of plumb at ten feet (3m) height to the North, i.e. possibly the S arcade moving inwards
- The East gable/ window inclines outwards to the East from 3 to 4 inches (75 to 100 mm) at ten feet high (3m) and the estimated the inclination would be 7-8" (175-200mm) at the top of the gable.
- Several voussoirs ("Coins of the Arches") have fallen down or were loose, many of the shafts of the piers were also loose and the walls had visibly bent.
- The whole building was giving clearly an impression it was slowly failing and he clearly attributed to the excessive load added over the walls, "a load the walls and pillars were never intended to carry".

Romantic ruins (Daguerre)



Reconstruction proposal, G Graham & Pugin 1834



PROPOSAL TO RESTORE HOLYROOD ABBEY

FIG 2

GILLESPIE GRAHAM & PUGIN 1836

Observations

- “Extreme avarice or stupidity of an architect” - H. Arnot
- Ignorance, but essentially the result of a partnership between an architect focused on tectonics (the aesthetics of a flagstone roof) and a stone mason, rather than a wright (carpenter), working on a context with no interest or experience any more on vaults, for a building that was not particularly loved by any type of community.
- A conscious and planned effort, not a quick repair,
- Key question is the choice of a flagstone roof and the associated diaphragm walls: not fully answered
- Tectonic connections were the main drive of the proposal, rather than understanding of a complex structural behaviour.
- The project was guided by appreciation of form rather than construction process

St. Machar, Aberdeen



St. Machar, Aberdeen



St. Machar, Aberdeen

- Originally a complete Norman church, but no stone from period remains
- General Monck led Cromwell's troops into Aberdeen in 1654. and removed stones from the abandoned bishop's palace and from the probably unfinished choir- led to a weakening of the tower?
- Storm in 1688 : tower fell into the transepts , crossing, and part of nave
- No major intervention, but church remained in service
- East end was completed only in 1953 , with three new stained glass windows.

Observations

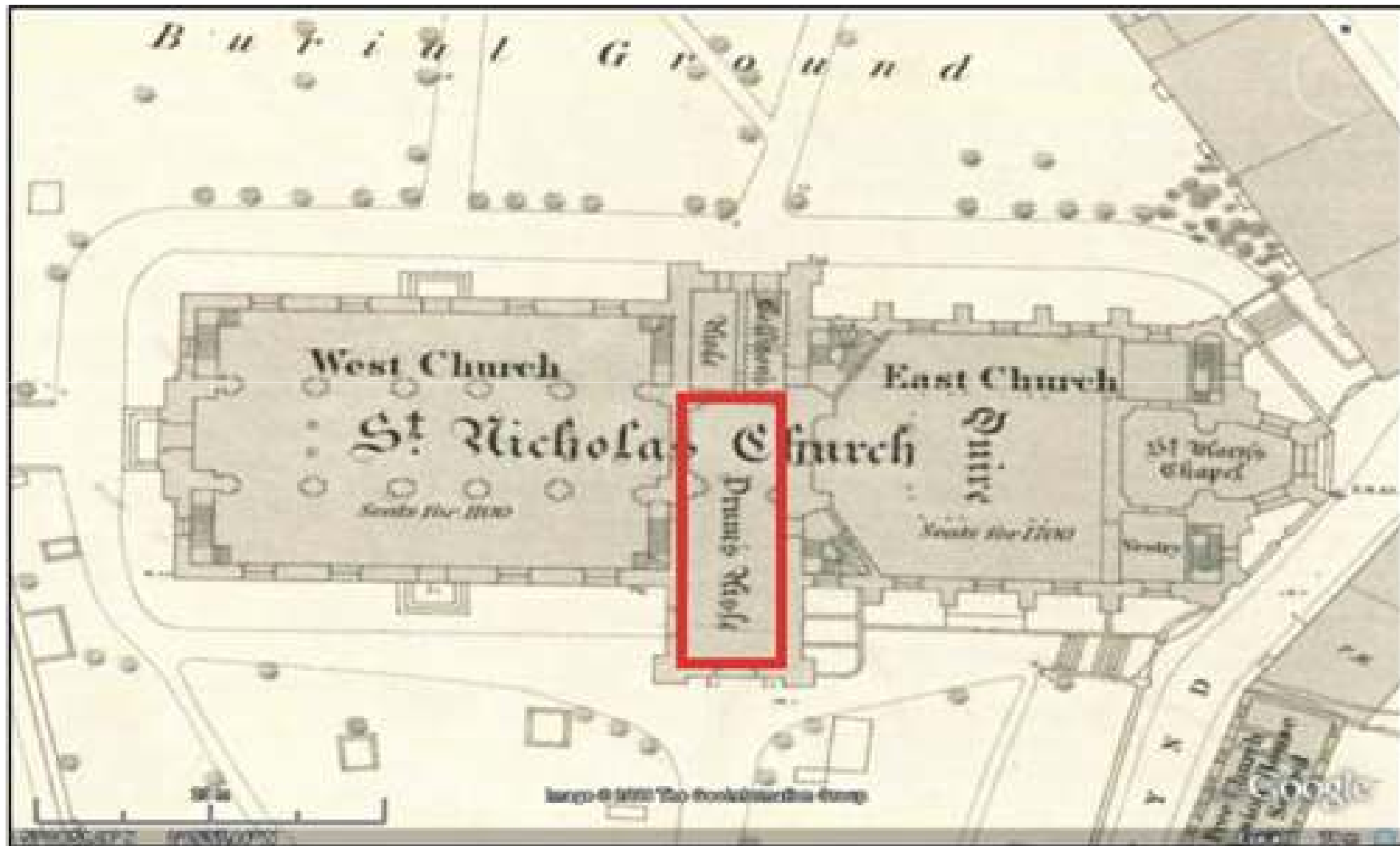
- Venerable (archaic) Norman interior has been the survivor
- The church has undergone many additions rather than transformations.
- No major changes to the nave after the collapse of the tower; transepts were demolished ; the choir is not certain it was ever finished.
- Tracery in main window of E end became 3 lancets – after 1953?
- Walls from transept used as buttress and void was walled – thickness and solidity give an impression of the original crossing.
- Norman interior does not seem was touched by the 1370's reforms.
- Wall had plaster removed before 1940.

St. Nicholas, Aberdeen



<https://canmore.org.uk/collection/1096054>

St. Nicholas, Aberdeen



St. Nicholas, Aberdeen

- 1477-1520: Expansion of original church
- 1596: new stone screen post-reformation. Nave is the Auld or West Kirk, Choir was the New or East Kirk
- 1732: Nave (Auld Kirk) unsafe and was closed (abandoned?), report by W Adam
- 1742 collapse (Nave?)
- 1751: Old Church demolished, after end of Jacobite rebellion
- 1755: West (Old) Church was rebuilt (James Gibbs, +1754)
- 1835; mediaeval choir [East Kirk] demolished; replaced in 1837 by Archibald Simpson
- 1874: fire; faithful reconstruction of Choir (East Kirk) as 1837 form (J&W Smith)
- 1980: East congregation was united with the West

St. Nicholas by 1822: West (Gibbs) and East Kirks



James Gibbs at West (Auld) Kirk, 1755



West (Auld) Kirk



East (New) Kirk, reconstruction in 1874 of Simpson's plan (1837)

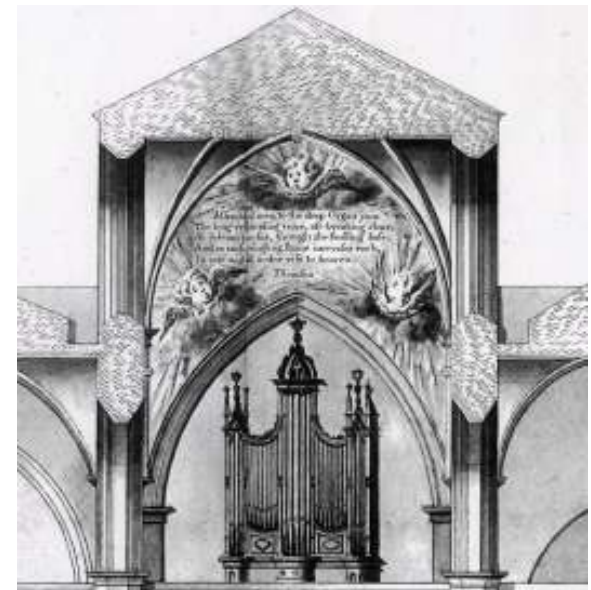
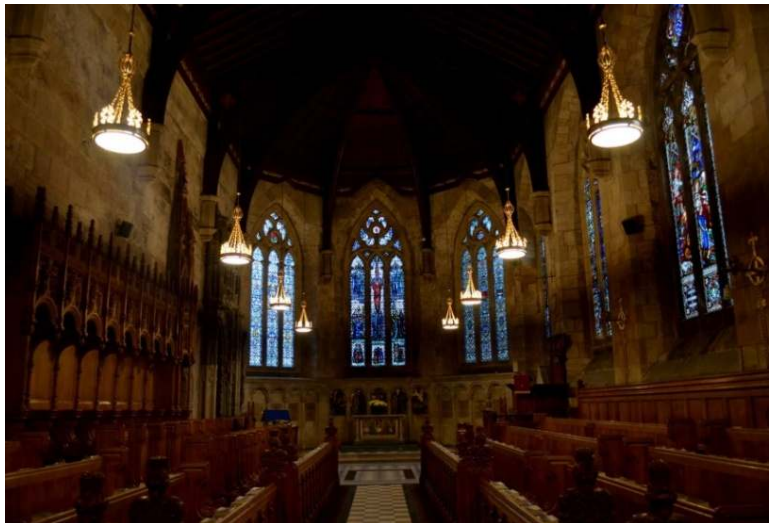
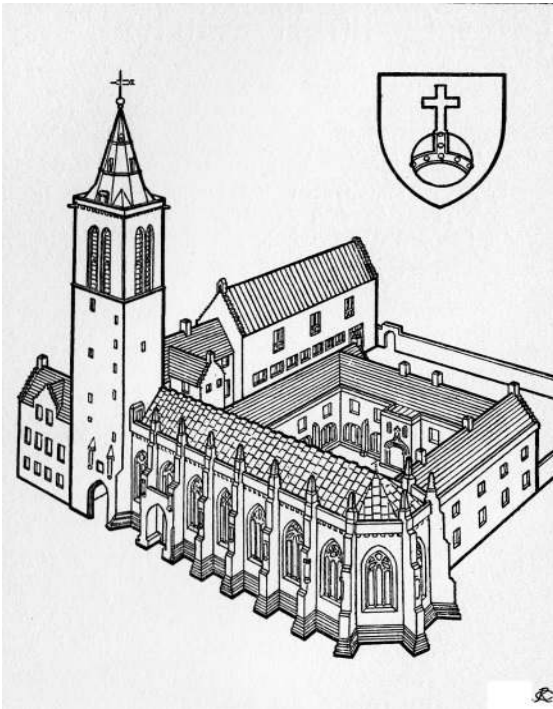


Observations

- Two parts for quite a period, 1596-1980
- Many reconstructions on the same site? What carries the memory of the form? Archaeology shows that footprint of foundations was the base for all phases.
- Gibbs could have been inspired by the venerable ruins of St. Machar's (1688) for the interior,- a too robust version of his style?
- Simpson does not follow Gibbs' arcade interior : restores Gothic concept (externally) but with Presbyterian interior
- Sequence reminiscent of Gothic cathedrals

St. Salvator, St. Andrews, 1773

- Founded in 1450
- Stone barrel vault, spanning 24ft (7.3m) , possibly the biggest span among the 15C collegiate churches? (Holyrood = 8.1m)
- Possible inspiration to John Douglas for a flagstone roof for Holyrood Abbey , as he was building student residences in 1754
- Deliberate collapse in 1773 on the advice of James Craig



Fearn Abbey, 1742

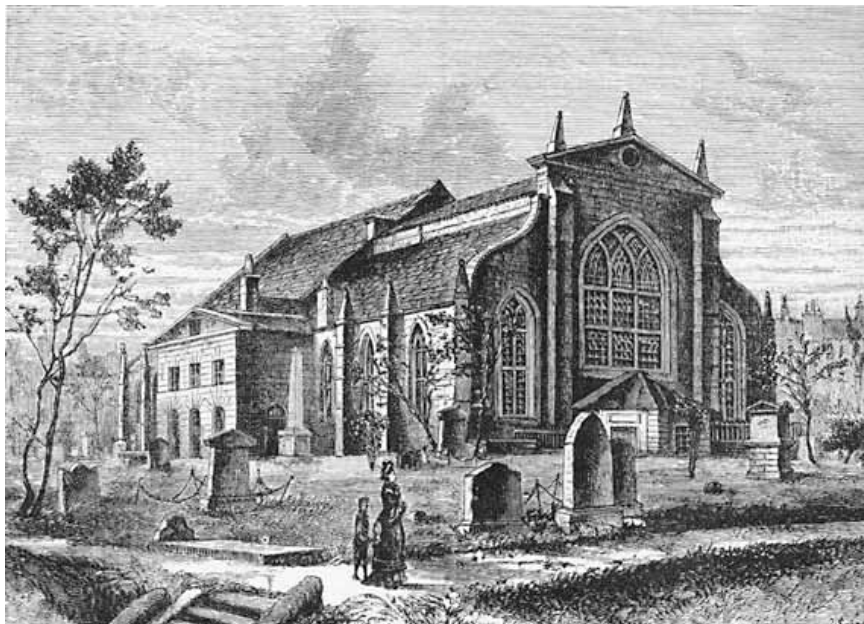
- Peculiar succession of reconstructions that highlighted the parishioners love for their antique church
- Sunday 10 October 1742: church was struck by lightning during a service and the stone-flagged roof collapsed on the congregation, killing as many as 50.
- The Minister insisted a new church be built to the south, using stone from the remains of the dormitory, cloister and the west end.
- By 1771 the new church was in ruins...
- 1772 the original church was reconstructed, using stone from the replacement church - no sign of that church can be seen any more.





Greyfriars, Edinburgh

- 1602 simple six -bay building in late Gothic style with arcades.
- Explosion in 1718 - west end .
- A new west wall, two bays into the church, and a new church was added (two more bays)
- Porch on N side in 1721: access to both churches.
- Fire in 1845 : over many years, the original roof and arcades were removed to add a new, single-span roof

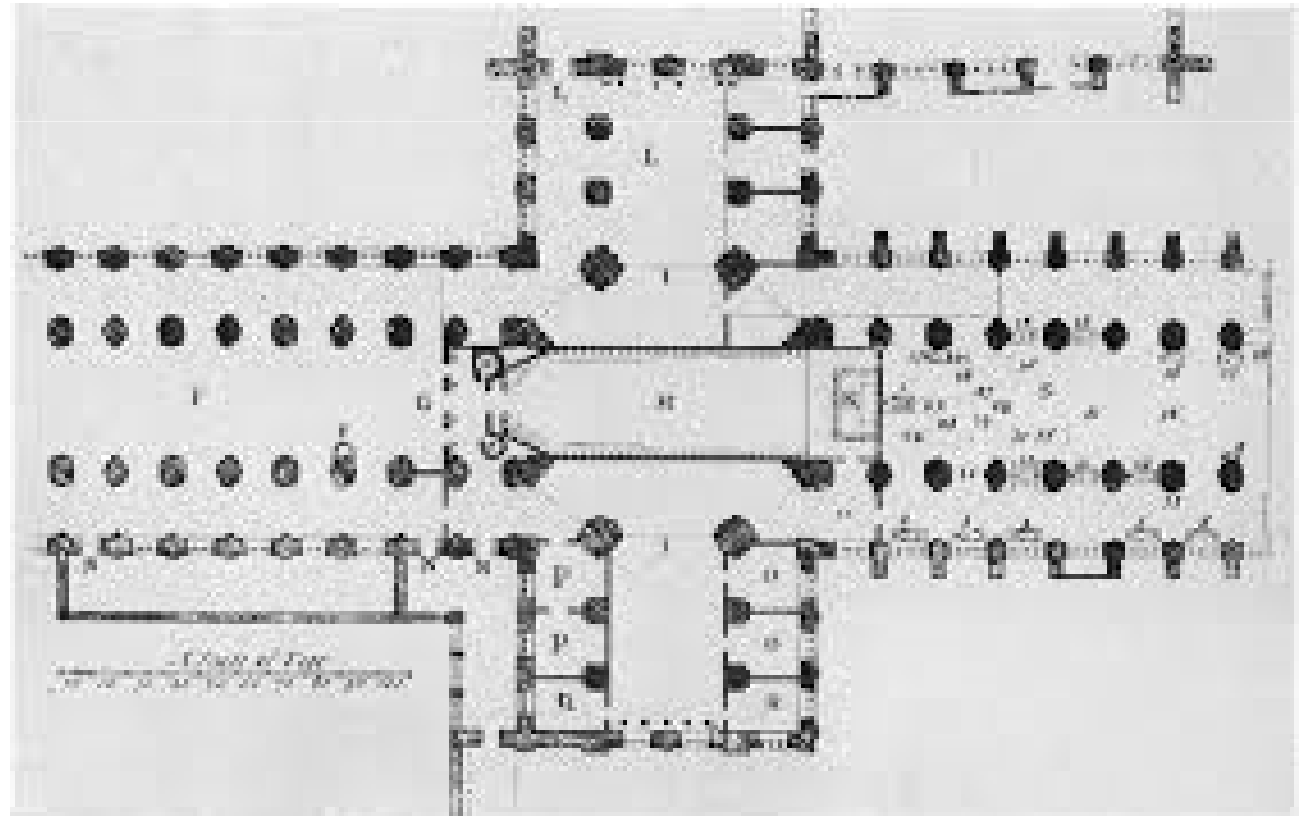


The British context

- Many major churches needed repairs and restoration after heavy handed interventions post reformation
- Controversial works by George Nicholson in 1773 and afterwards by James Wyatt in Durham cathedral
- Wyatt in Hereford damaged by the West tower collapse in 1786
- James Essex: Lincoln and Ely (1757-62)
- N. Hawksmoor showed ingenuity in 1716 and understanding of complex behaviours in his consolidation of the leaning North transept in Beverley Minster (a timber structure that he returned to the vertical).

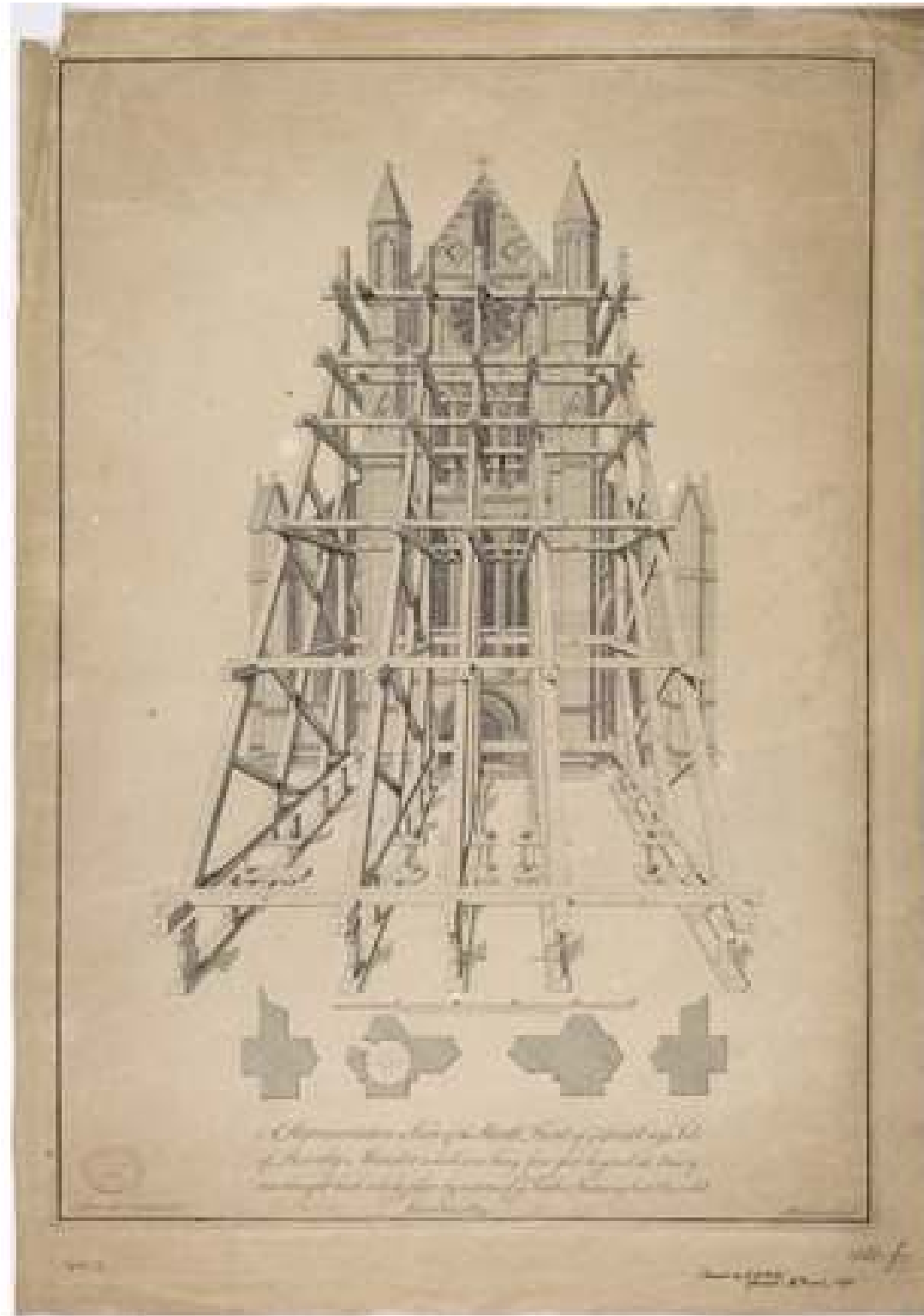
James Essex, Lincoln (1761-75)

- Substantial repairs from 1761
- New arch under the west tower
- Re-paved the entire church, repaired the choir screen, and designed an altarpiece and bishop's throne.
- In 1775 he designed and put up the four spires and battlement of the central tower.



Beverley

- Nicholas Hawksmoor 1716
- “the stone wall on the north-side was near three Foot out of the perpendicular, which he mov'd at once to its upright by means of a machine of his own invention “ [Obituary]



Key observations

- Transformations were often radical
- Collapses were often an addition of small events
- No knowledge of interest on performance or design of the pre-existing
- Lack of skills
- Emergence of professional architects – but masons origin?
-
- Some sensitivity and understanding for the structural behaviour of Gothic buildings in England - in contrast to Scotland, so no true model of good practice existed for architects at the period there?

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